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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,065	06/15/2005	Teodor Astrup	69501-79362	4263
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Aibihns.Zacco AB P.O. Box 5581 Valhallavagen 117 STOCKHOLM, SE-114 85 SWEDEN			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT	PAPER NUMBER
			1772	
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			06/23/2011	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/539,065

**Applicant(s)**

AASTRUP ET AL.

**Examiner**

PAUL HYUN

**Art Unit**

1772

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-14, 32-38, 40, 41, 43 and 46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-14 and 43 is/are allowed.
- 6) ☒ Claim(s) 32-38, 40, 41 and 46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 12, 2010 has been entered.

Claims 2-14, 32-38, 40, 41, 43 and 46 remain pending wherein claims 5, 6 and 9-13 were previously indicated as having allowable subject matter. Applicant amended claim 4.

Applicant's arguments with respect to the rejection of claim 43 have been fully considered and they are persuasive. The Examiner agrees with Applicant that neither Baer et al. nor Kösslinger et al. disclose or suggest the claimed first part and second part that are moveable with respect to one another. Thus, the rejections of claims 2-4, 7, 8, 14 and 43 have been withdrawn. However, claims 32-38, 40, 41 and 46 remain rejected.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **32, 35 and 38** are rejected under 35 U.S.C. 102(b) as being anticipated by Baer et al. (US 5,321,331).

Baer et al. disclose a flow cell element comprising an abutting part (substrate 12 and gasket 32) having an open recess 42 connected to an inlet channel 44 and an outlet channel 46. the recess is surrounded by a gasket 32 having an abutting surface (portions of the gasket that makes contact with substrate 16). The abutting surface is configured to come in contact with a piezoelectric quartz crystal (PQC) 16.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **33 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Ganter.

Baer et al. do not disclose the hardness of the gasket.

Ganter discloses an elastic sealing material in the form of an O-ring having a Shore hardness of the order of 50 to 60 (see lines 1-5, col. 5). The reference discloses that such hardness provides liquid-tight seal while providing flexibility in the form of compression (see line 68, col. 4). In light of the disclosure of Ganter, it would have been obvious to one of ordinary skill in the art to use a material having Shore hardness in the order of 50 to 60 to make the gasket disclosed by Baer et al.

Claims **36, 37 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Caron et al. (US 5,992,215).

Baer et al. do not disclose the dimensions of the device.

Caron et al. disclose a piezoelectric-based chemical sensor wherein the dimensions of the piezoelectric element ranges from 0.1 mm to 1 mm (see line 31, col. 3). In light of the disclosure of Caron et al., it would have been obvious to one of ordinary skill in the art to dimension the sensor disclosed by Baer et al. such that it can accommodate a piezoelectric element having dimensions between 0.1 and 1 mm. That said, it would have been obvious to one of ordinary skill in the art to provide a gasket having a width between 0.05-1 mm and a thickness between 0.01-0.2 mm.

Claim **40** is rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al.

Baer et al. do not disclose that the flow cell element is a unitary piece. However, the reference does disclose that the gasket 32 is "connected" to the piezoelectric substrate (see lines 17-21, col. 11). In light of the disclosure, it would have been obvious to one of ordinary skill in the art to "connect" the gasket to substrate 12 as well to ensure a fluid tight seal.

Claim **41** is rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Sheffler (US 4,569,438).

Baer et al. do not disclose the material from which the gasket is made.

Sheffler discloses an elastic gasket for providing a fluid tight seal between a lid and a container wherein the gasket is made from polyurethane (see line 63, col. 4). In

light of the disclosure of Sheffler, it would have been obvious to one of ordinary skill in the art to make the gasket disclosed by Baer et al. out of polyurethane.

***Allowable Subject Matter***

Claims 2-14 and 43 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Baer et al. disclose a piezoelectric-based chemical sensor comprising multiple parts that are assembled together. Both devices comprise a piezoelectric element that is accommodated by a base having fluid channels formed therein. However, Baer et al. do not disclose a first part and a second part that are moveable between a closed position and an open position as claimed in independent claim 43..

***Response to Arguments***

Applicant's argument with respect to claims 32-38, 40, 41 and 46 have been fully considered but they are not persuasive.

Applicant argues that the claims are patentable because Baer et al. do not disclose the limitation "said abutting surface and a portion of the abutting part closest to the abutting surface is made of an elastic material" or the limitation "being sealingly covered by the crystal when the first and second parts of the piezoelectric sensor arrangement are moved from an open position to a closed position" recited in claim 32. This argument is not persuasive.

With respect to the former claim limitation, Baer et al. disclose a gasket 32 that is made of an elastic material. As indicated in the rejection, gasket 32 in conjunction with substrate 12 disclosed by Baer et al. correspond to the claimed abutting part, and the

portion of the gasket that makes contact with the PQC 16 corresponds to the claimed abutting surface. That said, the portion of the abutting part closest to the abutting surface is made of an elastic material. For the foregoing reason, Applicant's argument that Baer et al. do not disclose the limitation "said abutting surface and a portion of the abutting part closest to the abutting surface is made of an elastic material" is not persuasive.

With respect to the latter claim limitation, it should be noted that the limitation refers to features that are not part of the claimed invention. In other words, the limitation does not further limit claim 32, and thus it cannot be the basis for the patentability of claim 32. For the foregoing reason, Applicant's argument that Baer et al. do not disclose the limitation "being sealingly covered by the crystal when the first and second parts of the piezoelectric sensor arrangement are moved from an open position to a closed position" is not persuasive.

Applicant further argues that claim 35 is allowable because the abutting surface disclosed by Baer et al. does not comprise a ridge having a smooth upper surface. This argument is not persuasive. As indicated above, the portions of gasket 32 that makes contact with PQC 16 corresponds to the claimed abutting surface. The Examiner maintains the position that the portions of gasket 32 that makes contact with the PQC 16 is a ridge having a smooth surface.

Applicant further argues that claim 38 is allowable because channels 44 and 46 are not arranged "close" to the periphery of recess 42. This argument is not persuasive because channels 44 and 46 are arranged sufficiently near the periphery of recess 42

such that they can be deemed to be arranged "close" to said periphery. In addition, the Examiner disagrees with Applicant that channels 44 or 46 are located at the center of recess 42. For the foregoing reason, Applicant's argument that claim 38 is allowable because channels 44 and 46 are not arranged "close" to the periphery of recess 42 is not persuasive.

Applicant also argues that claim 40 is allowable because the flow cell element disclosed by Baer et al. is not one piece. This argument is not persuasive because the flow cell element disclosed by Baer et al. is one piece as intended by Applicant. Based on the Specification, the claimed flow cell element is not made entirely out of an elastic material. In other words, according to the Specification, an element can be considered "one piece" even if it is made out of various materials. That said, Baer et al. disclose that gasket 32 is "connected" to the piezoelectric substrate (see lines 17-21, col. 11). The Examiner maintains the position that the flow cell disclosed by Baer et al. comprises a single piece as intended by Applicant.

For the foregoing reasons, the rejections of claims 32-38, 40, 41 and 46 are maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 10AM-6:30PM.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, In Suk Bullock can be reached on (571)-272-5954. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/  
Examiner, Art Unit 1772